

CHAPTER 2

HISTORY AND IMPLEMENTATION OF THE ENVIRONMENTAL RESTORATION PROGRAM

2.1 HISTORY

The DON/DOD cleanup program began with the passage of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). In the early 1980's, the DON solicited information from each Navy and Marine Corps installation about activities conducted on their base. Of particular interest were industrial facilities, disposal areas, landfills, past operations, drinking water wells and other practices that could have resulted in hazardous waste disposal sites. After careful evaluation of the data, DON recommended 79 installations for further study.

At the inception of the DON cleanup program, CERCLA did not specifically apply to federal facilities. However, the DON intended to become a good steward of the environment. This led to the establishment of a similar, but slightly varied program called the Naval Assessment and Control of Installation Pollutants (NACIP). The DON conducted Initial Assessment Studies (IASs), Verification Studies, Confirmation Studies and Corrective Action Measures as part of the NACIP program. The Naval Facilities Engineering Service Center, formerly the Naval Energy and Environmental Support Activity, completed IASs at the 79 installations by 1984. Remedial Project Managers at Naval Facilities Engineering Command Engineering Field Divisions (EFDs) then conducted follow on phases of the NACIP.

Passage of the Superfund Amendments and Reauthorization Act (SARA) in 1986 brought all federal facilities under the umbrella of the CERCLA program. SARA required the DON to follow U.S. Environmental Protection Agency (EPA) rules and regulations and to have a program that was procedurally and substantively equivalent to the EPA's Superfund program. SARA also formalized the Defense Environmental Restoration Program (DERP) and provided separate funding to DOD for the cleanup program. Currently, Congress provides this separate funding, the Defense Environmental Restoration Account (DERA), directly to the DOD. The DERA funds are then apportioned by DOD among the services and defense agencies responsible for executing the cleanup program. Beginning in FY97, this program will devolve to each service.

Following passage of SARA, DOD and the services adopted the EPA's Superfund terminology. Building on information contained in the IASs, the DON initiated studies to confirm the presence and extent of contamination at all Navy and Marine Corps installations. The DON now uses EPA's Superfund guidance to conduct Preliminary Assessments/Site Investigations, Remedial Investigation/Feasibility Studies and Remedial Designs/Remedial Actions as necessary to determine hazardous waste site cleanup requirements.

In addition to CERCLA cleanup actions, DON uses DERA funding to clean up sites under Resource Conservation and Recovery Act (RCRA) Corrective Action and RCRA Underground Storage Tank authority when these sites qualify for DERA funding. Since the program began, DERA funding has increased from \$21 million in FY84 and peaked at \$407 million in FY94. FY95 funding stands at \$405 million. The DON is well along in the study phase and is transitioning to a program marked by an increasing level of funding being dedicated to actual cleanups. Since FY91, the level of funding attributed to actual cleanups has risen from 13% to 59% in FY95.

2.2 IMPLEMENTATION

The Secretary of Defense is charged by the Superfund Amendments and Reauthorization Act (SARA) of 1986 to carry out a program of environmental restoration at facilities under the jurisdiction of the Secretary. This program is known as the Defense Environmental Restoration Program (DERP). It provides centralized management for the cleanup of past contamination from toxic and hazardous substances, low-level radioactive materials and petroleum, oil and lubricants (POL) at DOD sites consistent with the provisions of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended by SARA, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and Executive Order 12580, Superfund Implementation. The DERP is funded by a special transfer account, the Defense Environmental Restoration Account (DERA). The Deputy Under Secretary of Defense for Environmental Security (DUSD(ES)) centrally manages the account, develops and defends the budget, and allocates funds among the Army, Navy, Air Force and the Defense Agencies. Beginning with FY97 these responsibilities will devolve to the individual services.

In addition, the Environmental Restoration Program encompasses cleanup of past hazardous waste disposal sites at Base Realignment and Closure (BRAC) installations. Cleanup at these activities differs only in its funding through a separate BRAC account. To date, DOD has conducted four rounds of base closures (1988, 1991, 1993 and 1995).

GOALS OF THE ENVIRONMENTAL RESTORATION PROGRAM ARE TO

1. Ensure full environmental compliance with Federal, state and local requirements pertaining to the cleanup of contamination from past hazardous waste disposal practices.
2. Reduce risk by taking immediate action to eliminate human exposure to contamination and remove or contain contamination that poses imminent threats.
3. Score individual sites on installations using a Relative Risk Site Evaluation Model in order to identify, on a national basis, those sites that pose the greatest risk to human health and the environment.
4. Develop partnerships with EPA, state and local regulatory agencies, keeping them informed of cleanup activities and soliciting their comments and recommendations, as appropriate, throughout the cleanup process.
5. Involve the local community in the DERP program. Establish Restoration Advisory Boards (RABs) at all Navy facilities with an active Environmental Restoration Program and at Marine Corps installations where there is sufficient, sustained local interest. Form RABs at all BRAC installations. Encourage stakeholder participation by making information available in a timely manner, providing opportunities for public comment, and considering all comments in the decision making process.
6. Expedite the cleanup process and demonstrate a bias for action.
 - Remove high concentration sources of contamination.
 - Take stabilization or containment measures, as necessary.
 - Take interim action where appropriate.
7. Consider planned land use in developing cleanup strategies.
8. Ensure that actions necessary to protect human health and the environment are taken prior to property sale or other transfer in accordance with CERCLA, Section 120(h) as amended by the Community Environmental Response Facilitation Act of 1992 (P.L. 102-425) and DOD policy.

The Department of the Navy (DON) has been delegated responsibility to carry out the restoration goals prescribed by Deputy Under Secretary of Defense (Environmental Security) on property it manages. The DON's environmental restoration efforts to assess, characterize, and clean up or control past contamination is centrally managed and consists of three separate areas: CERCLA Installation Restoration, RCRA Corrective Actions, and RCRA Underground Storage Tank (UST) Cleanups. These regulatory regimes apply to both active and BRAC installations.

2.3 INSTALLATION RESTORATION PROGRAM

The Installation Restoration Program (IRP) is the primary component of the DERP and is DOD's program for meeting its responsibilities under CERCLA. The purpose of the IRP is to identify, quantify and clean up contamination at installations (including areas outside the installation where contamination has migrated), when necessary. The focus of the program is on cleanup of contamination associated with past hazardous waste disposal activities to ensure that threats to public health and the environmental are eliminated and that our natural resources are restored for future use. This includes demonstration of innovative cleanup technologies.

All sites on DON controlled property within the United States, its territories or possessions are included in the Installation Restoration Program. The IRP consists of a series of phases to identify, characterize and clean up hazardous waste sites at Navy and Marine Corps installations. In broad terms, the phases may be grouped into two general categories, study and cleanup. The study phases are Preliminary Assessment (PA), Site Inspection (SI), and Remedial Investigation/Feasibility Study (RI/FS). The cleanup phase includes Remedial Design (RD) and Remedial Action (RA). It also encompasses Interim Remedial/Removal Actions (IRAs).

2.3.1 PRELIMINARY ASSESSMENT

The installation restoration process normally begins with a Preliminary Assessment (PA) which is accomplished by the Naval Facilities Engineering Command (NAVFACENGCOM). The purpose is to identify potentially contaminated sites at an installation. This step involves the collection and review of readily available, existing information on past hazardous waste disposal operations or hazardous material spills at Navy or Marine Corps installations. The information is studied to determine the potential for the presence of hazardous substances. It considers pathways of exposure and possible receptors, the source, nature and threat of any release, the magnitude of the potential threat and whether or not removal or treatment is necessary.

2.3.2 SITE INSPECTION

A Site Inspection (SI) is performed for sites identified as potentially contaminated in the PA. The purpose is to augment the data collected in the PA and to generate, if necessary, sampling and other field data to determine if further action or investigation is warranted. It consists of an on-site investigation to determine whether there is a release or potential release and the nature of the associated threats.

Information from the PA and SI are used by the U. S. Environmental Protection Agency (EPA) to determine if an installation should be proposed for inclusion on the National Priorities List (NPL). The NPL is a list of sites nationwide, both public and private, that pose the greatest threat to human health or the environment. EPA makes this determination through their Hazard Ranking System (HRS) which assesses the information provided on a site and calculates an HRS score. An HRS score of 28.5 or greater qualifies the site for the NPL. Within DON, NPL status applies to the entire installation, unless the EPA and the DON concur that an area of the installation is not included in the listing. The DON, in accordance with DOD policy, enters into a Federal Facilities Agreement (FFA) with the cognizant EPA region as soon as possible after the installation is listed on the NPL. In many cases, states in which NPL installations are located are third parties to the FFA. The FFA specifies the roles and responsibilities of the regulatory agencies and the DON. It also establishes milestones for future cleanup actions.

2.3.3 REMEDIAL INVESTIGATION/FEASIBILITY STUDY

If a site is verified as contaminated in the SI, it then proceeds to a Remedial Investigation/Feasibility Study (RI/FS). The purpose of the RI/FS is to determine the nature and extent of the threat presented by a release, and where appropriate, to evaluate proposed remedies. The RI is a detailed study that involves a variety of investigative sampling and analytical activities, including installation of monitoring wells, and geophysical studies. It also includes the collection of soil, air, water and other samples to determine contaminant characteristics, hazards and routes of exposure. When appropriate, a Human Health Risk Assessment and an Ecological Risk Assessment are conducted according to EPA guidelines. The FS uses information generated by the RI to identify potential cleanup actions. During the FS, a number of potential remedial alternatives are developed and screened to evaluate their ability to meet a range of factors including technical and regulatory requirements. After consideration of public and regulatory agency comments, the RI/FS is concluded by selection of the remedy, which may also include a recommendation of no further action. The selection is documented by a Record of Decision (ROD) for NPL sites and by a Decision Document for sites not listed on the NPL.

2.3.4 REMEDIAL DESIGN

A site identified in the RI/FS as requiring a cleanup action will then move into the Remedial Design (RD) phase. The goal of the RD is to prepare all technical drawings and specifications needed to implement the selected cleanup action. The Remedial Design begins the cleanup phase.

2.3.5 INTERIM REMEDIAL ACTIONS, REMOVALS, REMEDIAL ACTION

Interim Remedial Actions (IRAs) and removal actions may be undertaken at any point during the investigation or cleanup of a site to respond to a release that may present an imminent and substantial threat to human health or the environment, to reduce the overall risk of a site or to stabilize a site until the final cleanup action can be completed. On an increasing basis, the DON is utilizing IRAs as a tool to quickly respond to site contamination, reduce study costs and accelerate the cleanup process.

The Remedial Action (RA) is the actual construction, operation and implementation of the selected final cleanup action. In some cases, the final remedial action may include long term operation and monitoring of treatment systems. In those cases, the RA is considered complete when the selected remedy is in place (RIP) and is functioning as designed.

The DON's overall goal for FY95 was to allocate at least 60% of its DERA budget on cleanups.

2.3.6 RESPONSE COMPLETE

When the DON has completed all the necessary study and cleanup actions, and the DON considers all work completed, the site is designated Response Complete (RC). At this point, regulatory concurrence that all work is complete is sought from the appropriate agencies.

2.3.7 SITE CLOSEOUT

When no further actions under the IRP are considered by the DON to be appropriate because the site does not pose a threat to human health or the environment and consent from the regulators is obtained, the site is designated Site Close Out (SCO). At NPL installations, it is necessary for the EPA to concur with this decision. At non-NPL installations, state concurrence with SCO may be required, depending on the individual state policy. A site may be closed out at the end of the PA, SI, RI/FS or RA.

2.4 RESOURCE CONSERVATION AND RECOVERY ACT CORRECTIVE ACTIONS

The Resource Conservation and Recovery Act (RCRA) of 1976, as amended by the Hazardous and Solid Waste Amendments (HWSA) of 1984, established a national strategy for managing ongoing solid and hazardous waste operations, as well as corrective action requirements for cleaning up hazardous waste releases. RCRA section 3004(u) requires that permits issued by the Administrator of the EPA, or an authorized state, require corrective actions for all releases or hazardous waste or contents from any solid waste management units (SWMU) at a treatment, storage or disposal TSD facility. The EPA may issue an order requiring corrective action under RCRA section 3008(h) when an interim status facility is not seeking a RCRA permit or the issuance of a permit is not expected in the near future.

Investigation and cleanup of site contamination at SWMUs required by sections 3004(u), 3004(v) and 3008(h) of RCRA are eligible for DERA funding when these corrective actions address cleanup of historic contamination and are viewed as installation restoration. Closure or corrective actions at regulated TSD units are not eligible for DERA funding. Facility construction and improvements required under RCRA are not DERA eligible. EPA identifies potential SWMUs by conducting RCRA Facility Assessments (RFAs) at Navy and Marine Corps installations.

RCRA Corrective Actions at an installation may include containment, stabilization or removal of the source of the contamination; assessment of health risks associated with contamination; identification and evaluation of potential corrective actions; design and construction of the selected corrective action, and implementation of the corrective action. The RCRA corrective action process is very similar to the IRP response process.

2.5 UNDERGROUND STORAGE TANK CLEANUPS

Subtitle I of the Hazardous and Solid Waste Amendments (HWSA) of 1984 established a national regulatory program for managing Underground Storage Tanks (USTs) containing hazardous material, including CERCLA hazardous substances and petroleum products. Hazardous wastes stored in USTs were already regulated under RCRA. Although EPA was directed to promulgate UST regulations, the program was designed to be administered by states. Both state and local governments were permitted to establish regulatory programs with more stringent standards than those established by the EPA.

USTs are generally defined as all tanks and attached piping containing regulated substances in which the tank volume (including piping) is 10 percent or more beneath the surface of the ground. Navy policy requires installations with USTs to have a UST management plan which contains the following information:

- Listing of all USTs at the installation.
- Regulatory requirements for each UST.
- A plan of action for achieving and maintaining compliance through monitoring, removal, repair, replacement and remediation of UST systems.

The Marine Corps policy requires installations to maintain a tank inventory and develop a tank management strategy. The tank management strategy requires installations to look beyond compliance tasks and consider a comprehensive approach to long term UST storage needs.

Studies conducted to locate USTs not in use since January 1984, activities to determine whether a release has occurred from these abandoned tanks and response to the past release are eligible for DERA funding as environmental restoration projects. Also eligible are responses to releases from in-service tanks discovered during initial integrity testing (leak detection monitoring) where testing was conducted prior to the regulatory date of December 22, 1993. DERA eligibility only applies to the cleanup of releases, and does not include replacing or repairing leaking tanks.

Individual USTs are not necessarily identified as a separate site. Where USTs are physically located together, as is often the case with a fuel farm, the tanks are grouped together and considered as one site.

2.6 REGULATORY PROGRAMS COMPARISON

Although each of the three DERA programs, CERCLA IRP, RCRA Corrective Action and RCRA Underground Storage Tank Cleanups, essentially follow the same steps, each program uses slightly different terminology. The following figure compares the steps taken and the terminology used for each regulatory regime.

| RCRA CORRECTIVE ACTION | CERCLA | RCRA UNDERGROUND STORAGE TANKS |
|--|---|--|
| RCRA Facility Assessment (RFA) <ul style="list-style-type: none"> Preliminary Review Visual Site Inspection (VSI) Sampling Visit (SV) | Preliminary Assessment/ Site Investigation (PA/SI) <ul style="list-style-type: none"> Preliminary Assessment Site Investigation HRS Scoring | Initial Site Characterization (ISC) <ul style="list-style-type: none"> Tank Inventory Tank Testing Site Characterization |
| Interim Measures <ul style="list-style-type: none"> Short-term Remediation Temporary Fixes Alternate Water Supplies | Removal Action/Interim Remedial Actions (RA/IRA) <ul style="list-style-type: none"> Emergency and Time Critical Removals Planned Removals (> 6 months) Interim Actions to Reduce Site Risk | Interim Remedial Measures (IRM) <ul style="list-style-type: none"> Interim Actions to Reduce Risk Alternate Water Supplies |
| RCRA Facility Investigation (RFI) <ul style="list-style-type: none"> Background Data Review Environmental Setting Investigation Sources Characterization Contamination Characterization Potential Receptors Characterization | Remedial Investigation (RI) <ul style="list-style-type: none"> Site Specific Data Collection Source Characterization Contamination Characterization Waste Mixtures, Media Interface Zones Hydrogeological and Climate Factors Characterization of Affected Media Potential Routes of Exposure and Risk Assessment Extent of Migration | Investigation (INV) <ul style="list-style-type: none"> Groundwater wells affected Free product recovery required Contaminated soils in contact with groundwater Potential effects on nearby surface and groundwater resources |
| Corrective Measures Study (CMS) <ul style="list-style-type: none"> Identify and Develop Alternatives Evaluate Alternatives Justify & Recommend Corrective Measure | Feasibility Study (FS) <ul style="list-style-type: none"> Define Objectives & Nature of Response Develop Alternatives Conduct Detailed Analysis of Alternatives Treatability Studies | Corrective Action Plan (CAP) <ul style="list-style-type: none"> Remedial Investigation Plan and Implementation <ul style="list-style-type: none"> Site specific Data Collection Contaminant Characterization Characterization of Affected Media Extent of Migration Corrective Action Plan |
| Remedy Selection <ul style="list-style-type: none"> Remedy that Abates Threat to Human Health and the Environment | Remedy Selection <ul style="list-style-type: none"> Select a Remedy that: <ul style="list-style-type: none"> Protects Human Health & Environment Attains Federal & State ARARs Is Cost Effective Utilizes Permanent Solutions/Resource Recovery Reduces Toxicity, Mobility or Volume Record of Decision, Decision Document | Remedy Selection <ul style="list-style-type: none"> Remedy that will adequately protect human health, safety and the environment |
| Design (DES) <ul style="list-style-type: none"> Technical design of selected remedy Specific to site's unique characteristics Construction requirements | Remedial Design (RD) <ul style="list-style-type: none"> Technical design of selected remedy Specific to site's unique characteristics Construction requirements | Design (DES) <ul style="list-style-type: none"> Technical design of selected remedy Specific to site's unique characteristics Construction requirements |
| Corrective Measure Implementation (CMI) <ul style="list-style-type: none"> Develop Implementation Plan, Program Plan & Community Relations Plan Construction and Implementation | Remedial Action (RA) <ul style="list-style-type: none"> Perform Remedial Action Perform Operations & Maintenance Post Closure Monitoring | Implementation (IMP) <ul style="list-style-type: none"> Implement Corrective Action Plan |

2.7 BASE REALIGNMENT AND CLOSURE ACTS OF 1988 AND 1990

Actual environmental restoration work at installations covered by each of the four rounds of base closures is conducted in a similar manner to cleanups at active installations with two major distinctions; 1) cleanup is not funded from DERA, and 2) cleanup decisions are based on economic reuse considerations as well as risk.

The Base Realignment and Closure Act of 1988 (PL 100-526) (BRAC I) and the Defense Base Closure and Realignment Act of 1990 (PL 101-510) (BRAC II, BRAC III and BRAC IV) required the environmental restoration efforts at bases being closed or realigned to be funded from a separate BRAC account. It was the intent of Congress that closing bases would not have to compete for cleanup funds with active installations. It also provides an impetus for quicker cleanup and turnover of land to the public sector for economic reuse.

In July 1993, the President announced a five-part program to speed economic recovery at communities where military bases are slated to close. Closing bases have been directed to establish a BRAC Cleanup Team (BCT) at each activity where property is available for transfer to the community. The BCT is empowered with the authority, responsibility and accountability for environmental cleanup programs at these installations, with the emphasis on taking necessary actions to facilitate reuse and redevelopment. The DON is working closely with regulators to use innovative technologies and management approaches that will allow bases to be cleaned up even earlier than originally planned.